An Assessment of the Risks of Gambusia infestation in Tasmania

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Freshwater Systems

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Executive Summary

This report describes a descriptive and qualitative risk assessment of the risks of Gambusia infestation to Tasmanian aquatic ecosystems and related values. The following conclusions have been drawn.

Infestation risk

- Extensive areas are at risk of potential infestation of Gambusia in Tasmania. Most river, wetland, waterbody and estuarine systems are suitable for establishment of Gambusia populations once introduced. The risk of infestation is high statewide in the medium to long term, and presents a high and spatially extensive hazard to the state's aquatic ecosystems.
- Most aquatic habitats in Tasmanian are likely to ultimately contain and sustain Gambusia populations if control is poor. Infestations will be more substantial and widespread in lowland and coastal, shallow wetland, lagoon, farm dam, estuary and saltmarsh habitats.
- The rate of Gambusia dispersal will vary greatly. In the absence of human translocation it will be slow between catchments. Local dispersal within catchments could be relatively fast in downstream directions. Cooler temperatures and higher flow velocities will limit the rate of dispersal and establishment and the intensity of new infestations in western and upland areas.
- Human translocation remains the single most likely route of introduction to uninfested aquatic assets.
- All lowland wetlands, lagoons and lakes are rated at moderate to high risk of Gambusia infestation. Upper elevation lentic habitats are rated at low to moderate risk, but are not rated as having no risk.
- Most lowland river catchment mainstem channels across the state are at moderate to high risk of Gambusia infestation. Larger tributaries are rated at low to moderate risk, while all smaller tributaries are rated at low risk.
- All mapped estuarine and saltmarsh assets are rated at moderate to high risk.

- Several extensive wetland and saltmarsh complexes have the potential to develop into substantial nodes of infestation.

Consequences

- Consequences of Gambusia infestation are likely to be variable, depending on habitat and the presence of vulnerable species.
- The combination of high and widespread infestation potential with locally intense consequences leads to a high overall risk from Gambusia to aquatic ecosystem biodiversity, frog community conservation status and the conservation status of up to 7 native endemic fish species.
- Consequences of severe infestations for nearly all frog species are likely to be severe. Consequences for fish species are variable. All listed Galaxiid and Paragalaxiid species are likely to be vulnerable to Gambusia predation and competition.
- Impacts on aquatic ecosystem benthic and water column invertebrate communities may be severe in highly infested, shallower waters.
- Risks to socioeconomic values are likely to be low to moderate, but may occasionally be locally high.
- Large scale impacts on recreational or commercial fisheries are unlikely. Local impacts on shallow water lowland and coastal recreational fisheries for trout are most likely.
- Localised impacts on social amenity and aesthetic values could occur through changes in water quality and perceptions related to Gambusia presence in waters of public amenity, high visibility or conservation areas.
- Increased costs associated with management of other species may include mitigation costs and increased fish translocation costs.

Management commentary

- General comment is provided on the current control program and activities.
- Several management and research recommendations are made aimed at adding value to the current program (see Sections 8 and 9 for details).